

## **Aircraft Emergency Evacuation Study of Injured Passengers and Crew Redirection**

Hae Chang Gea, PhD, Rutgers University

The airplane evacuation simulation computer program was developed by Rutgers, the State University of New Jersey with the Federal Aviation Administration (FAA) Civil Aerospace Medical Institute (CAMI) since 2003. An advantage of computer simulation is that it can replicate different scenarios with specific hazardous condition and analyze an entire detailed evacuation process. One of a hazardous condition, the effect of injured passengers for airplane evacuation, was studied using computer evacuation program. The injured passengers represent the passengers who can only move very slowly. These may include: disabled passengers, the passengers who need special assistance, or injured passengers due to the emergency evacuation situation.

From the previous study, we found out that the overall evacuation time was increased for evacuation time with injured passengers. Therefore, it could be worthy to study the injured passenger situation with the crew redirection. Similar to the other crew redirection algorithm, two principles of the crew redirection are simulated with different locations of injured passengers. To simulate the crew redirection with the injured passenger, two typical dual aisle airplane was modeled with 100% passenger occupancy rate, and Monte Carlo simulations were performed.